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ACCOMPLISHMENT PLAN

REGION VIII, RED RIVER OF THE NORTH BASIN

ENVIRONMENTAL PROTECTION AGENCY

MARCH 1972

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The Red River of the North Basin has been selected by Region VIII as a high priority area for a pollution prevention abatement and control program for Fiscal Years 1972, 1973 and 1974. Municipal, industrial and agricultural discharges have limited the use of the Red River of the North and some tributaries for water-related recreation activities. This accomplishment plan discusses the specific tasks and plans for accomplishing the water quality objectives of Region VIII for this area.

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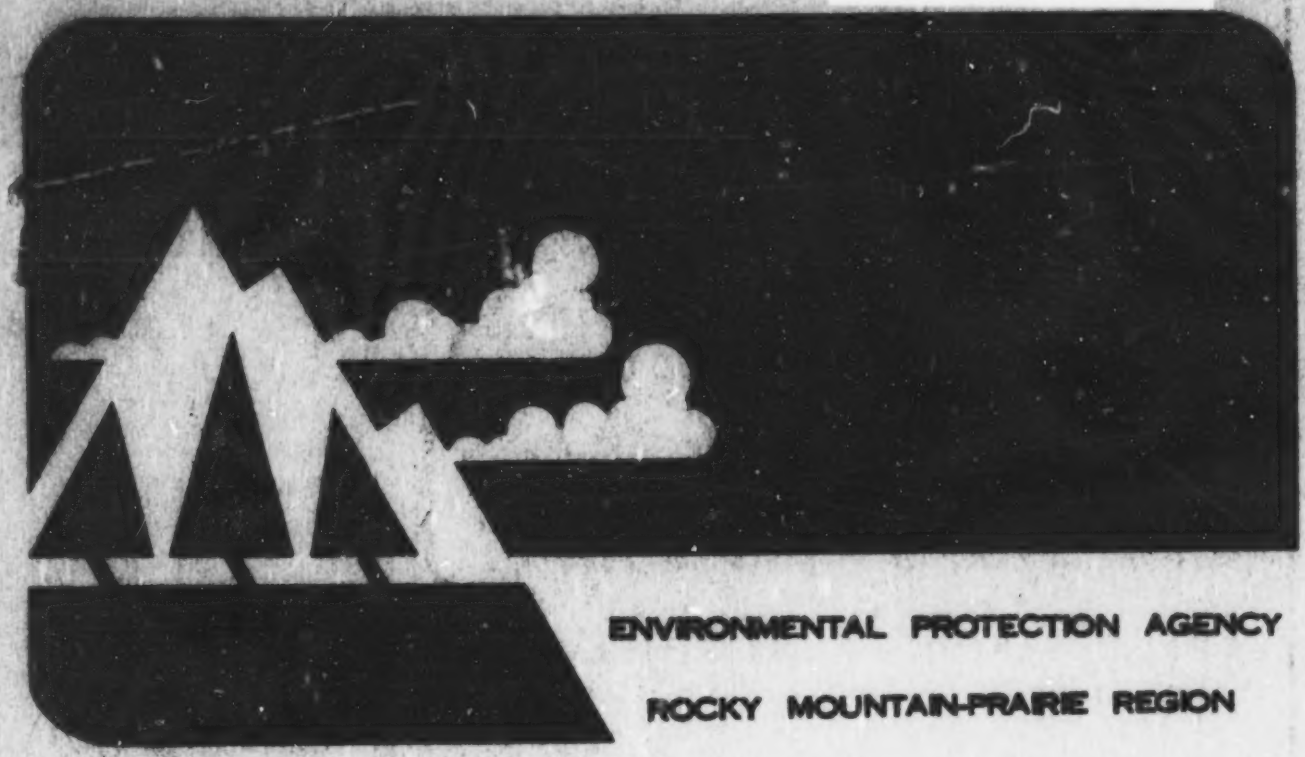

ENVIRONMENTAL PROTECTION AGENCY

ROCKY MOUNTAIN-PRAIRIE REGION

ACCOMPLISHMENT PLAN

REGION VIII

RED RIVER OF THE NORTH BASIN

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ACCOMPLISHMENT PLAN

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THE RED RIVER OF THE NORTH BASIN

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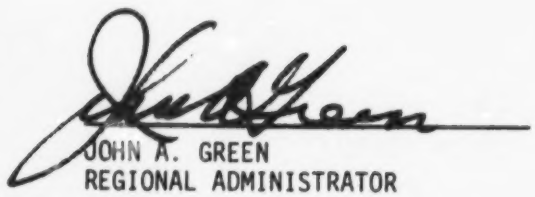

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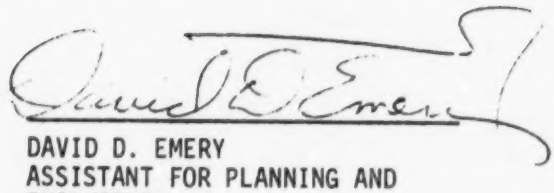

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SECTION 1

GENERAL

The Red River of the North Basin has been selected by Region VIII as a high priority area for a pollution prevention abatement and control program for Fiscal Years 1972, 1973 and 1974. Municipal, industrial and agricultural discharges have limited the use of the Red River of the North and some tributaries for water-related recreation activities. High nutrient concentrations in municipal and agricultural discharges have caused accelerated eutrophication of the Red River of the North and created nuisance algae conditions. Industrial discharges, particularly from sugar beet processing, have depleted the dissolved oxygen concentrations and caused fish kills particularly during periods of ice cover and prolonged periods of low or negligible flow. Upstream lakes, especially Lake Traverse, are eutrophic due to nutrients carried in land runoff from farm lands and feedlots. Future operation of the Garrison Diversion Project provides an additional source of nutrients from the new irrigated lands and is expected to significantly affect the mineral quality of the Red River of the North due to the importation of dissolved solids, leaching of salts from irrigated lands and concentrating affects of consumptive use.

This accomplishment plan discusses the specific tasks and plans for accomplishing the water quality objectives of Region VIII for this area.

SECTION 2

BROAD OBJECTIVES

2.1 Improve the water quality of the Red River of the North near Grand Forks by reducing the density of coliform organisms from values in the order of 16,000/100 ml to the standard of 5,000/100 ml and to sustaining the dissolved oxygen levels at or above the standard of 5.0 mg/l. Target date for completion: October 31, 1972.

2.2 Analyze nutrient problem and develop a control program to reduce eutrophication and eliminate nuisance algae conditions. Target date: April 30, 1974.

2.3 Minimize the adverse effects resulting from the diversion and use of Garrison Project waters.

SECTION 3

SPECIFIC TASKS AND ACCOMPLISHMENTS FOR WATER QUALITY IMPROVEMENT

3.1 Improve bacteriological and dissolved oxygen quality of the Red River of the North.

Purpose of the Plan

The purpose of this plan is to obtain compliance with established water quality standards for the Red River of the North.

Situation

During winter months, the majority of the Red River of the North is covered with ice. This allows no chance for reaeration to occur and biological activity under the ice slowly depletes the dissolved oxygen in the water. In the past, the depletion of oxygen caused by waste loads from the Fargo-Moorhead area has caused the dissolved oxygen concentrations to fall to zero at the Grand Forks water intake. Also, high coliform densities in the wastewater discharge from Fargo, North Dakota; Moorhead, Minnesota; and from unidentified sources in the Grand Forks, North Dakota, area cause total coliform concentrations to exceed the standard along a 100 mile reach downstream from Fargo.

Approach and Milestones

1. Accelerate the construction of the new treatment facilities at Fargo, North Dakota; Moorhead, Minnesota; and Abercrombie, North Dakota.

If Abercrombie and/or Fargo, North Dakota, fail to comply with the established construction schedules, the appropriate enforcement action will be initiated by June 1, 1972.

By April 11, 1972, sign contract for wastewater treatment facility at Fargo, North Dakota, as required by 180-day notice hearing in July 1970.

By April 18, 1972, begin construction of the Fargo facilities.

By October 31, 1972, the City of Fargo will have the new secondary wastewater treatment facility in operation.

By October 1, 1972, the City of Moorhead, Minnesota, will have new wastewater treatment facilities in operation. (To be coordinated with Region V.)

By May 1, 1972, a construction grant will be offered and accepted by Abercrombie, North Dakota.

By November 30, 1972, the secondary wastewater treatment facility for Abercrombie, North Dakota, will be in operation.

Project Manager: Samuel Berman, Air & Water Division

2. Complete a bacteriological water quality survey in the Grand Forks, North Dakota area.

A reconnaissance of the Grand Forks area will be required to select sampling stations that will isolate possible bacterial sources. This portion of the work plan is not dependent upon winter conditions and therefore it is anticipated that reconnaissance will be done by September 1, 1972, and sampling will be complete by October 1, 1972. Results of the

testing and recommendations to abate the pollution will be completed in report form by January 1973.

Based upon the results of the water quality surveys, enforcement action will be initiated against sources in the Grand Forks area by February 1, 1973, and in the Fargo-Moorhead area by March 1, 1973.

Project Manager: Dr. Milton Lammering, Technical Support Branch, Surveillance and Analysis.

3. Complete a follow-up investigation of bacteriological and dissolved oxygen concentrations in the Red River of the North subsequent to the completion of the new wastewater treatment facilities referred to above.

Those stations that were sampled during the 1965 and 1969 - 1970 investigations will be resampled and the results will be compared to show the expected improvement in water quality. If the results do not indicate the expected improvement, a new control program will be initiated. Since this program requires that the samples be collected during the winter months after the improvements have been made to existing wastewater treatment facilities, December 1972 will be the first month that samples can be collected. Sampling will be complete by February 1973.

Project Manager: Dr. Milton Lammering, Technical Support Branch, Surveillance and Analysis Division.

Interrelationships

The Red River of the North is a joint responsibility of Region VIII and Region V. As such, any work plan that is developed must be coordin-

ated with Region V. Also, the International Joint Commission, Canada and the United States, has recommended certain water quality objectives for the Red River of the North which must be compatible with the standards used by EPA in any water quality management control plan.

Unresolved Issues and Problems

Dissolved oxygen depletion and bacteriological pollution of the Red River of the North are also caused by runoff from fertilized fields, farmlots, and feedlots. Existing and proposed legislation do not give the EPA authority to control these diffused waste sources.

3.2 Process Ten Permits

Purpose

To reduce wastewater flows and concentrations through the implementation of the Permit Program by setting special conditions in each permit that will require industries to meet water quality standards and to discharge effluents that have received no less than the equivalent of secondary treatment.

Approach

The work will be carried out principally by the Permits Branch of the Enforcement Division, but with the aid of the Surveillance and Analysis Division, Management Division (Computer Branch), and Air and Water Programs Division (Planning Branch).

Inspections in the Red River Basin will be carried out by the Surveillance and Analysis Division and EPA's State Assignee and coordinated with the North Dakota Department of Health, the South Dakota Department of Health, and the appropriate county health departments.

Management Division support is planned for such items as updating and implementing computer programs, key punching data, etc. Water quality standards, metropolitan planning outputs, and systems analysis work are expected from the Air and Water Programs Division.

Milestones

The following milestones constitute the Permit Branch's plan of action that will, in effect, reduce the industrial waste discharges to the Red River and aid in upgrading the quality of the water.

1. Inspections in the Red River Basin for the purpose of identifying uninformed or noncomplying industries completed. August 1, 1972.

2. Completed applications obtained for all significant industries. September 1, 1972.

3. Requests for State certification completed for all significant industries. October 1, 1972.

4. Interim effluent monitoring plan developed for the major industries, December 1, 1972; plan finalized on February 1, 1973.

5. Technical reviews of applications from significant industries in Red River Basin completed; special permit conditions set to meet water quality standards, secondary levels of treatment, planning and institutional requirements, and water quality criteria set forth by the Bureau of Sport Fisheries and Wildlife and coordinated with EPA and the State departments of health; recommendations to Corps of Engineers completed. February 1, 1973.

Unresolved Policy Issues

In a recent court decision, a Federal judge concluded that permits could not be issued for industrial wastes discharged to nonnavigable streams and that discharges to navigable streams required an environmental impact statement prior to issuance of each permit. Both facets of this decision could have far-reaching impacts on the Red River.

Under existing policy, the Permit Program has been constrained with regard to its applicability to feedlot operations. Only those feedlots having more than 1,000 animal units and having man-made point discharges of wastes presently fall under the Permit Program. The number of animal units criteria in this policy removes about 90 percent of the Basin's feedlots from the Refuse Act authority and the point-discharge stipulation removes most of the remaining large operations that have diffuse discharges and cause water quality problems in the Red River Basin.

Project Manager: Evan Dildine, Permits Branch, Enforcement Division

3.3 Analyze the nutrient problem and develop a control program.

Purpose of the Plan

The purpose of the plan is to analyze the nutrient problem and implement a control plan which will result in a reduction of nutrient concentrations. As a result, the costs of treatment associated with municipal and industrial water supply will be reduced, the perpetuation and propagation of fish will be enhanced by a reduced variation of dissolved oxygen concentrations and recreational uses will be improved.

Situation

In addition to evaluating the dissolved oxygen situation and isolating the sources of coliform bacteria in the Grand Forks area, the problem of nutrients in the Red River should be investigated. One of the recommendations adopted by the conferees at the September 1965 Conference (In the Matter of Pollution of the Red River of the North) was "Since nutrients discharged in the sewage and industrial wastes from Fargo and Moorhead cause excessive biological growths downstream, the maximum practical reduction of nutrients, including phosphorous,

in these wastes is to be accomplished as soon as possible."
No detailed analysis of the nutrient conditions in the Red River of the North has been made so that maximum allowable concentrations or pounds of nutrients that can be discharged from the various waste sources has not been established. To accomplish this goal, an extensive survey aimed at nutrient conditions in the Red River will be required.

Approach

1. Sample wastewater treatment plants, stream sediments and in-stream water quality to determine their relationships to algae growth.

2. Based upon the data collected in (1) above, control plan will be developed.

3. The Red River of the North Enforcement Conference will be reconvened and the program presented for adoption.

Milestones

By November 1, 1973, water samples will be collected and analyzed for nutrients.

By January 1, 1974, the results and conclusions of the nutrient survey will be completed.

Project Manager: Dr. Milton Lammering, Technical Support Branch, Surveillance and Analysis Division

By March 1, 1974, the control plan for the Red River of the North will be developed.

Project Manager: Pat Godsil, Air and Water Division

By April 30, 1974, the enforcement conference will be reconvened and the control program presented and adopted.

Project Manager: Thomas T. Rogers, Enforcement Branch, Enforcement Division

Interrelationships

The standards and control plan will have to be developed jointly with Region V which is responsible for that portion of the Red River of the North Basin in Minnesota. This plan will be presented to the International Joint Commission for adoption.

Unresolved Policy Issues and Problems

A large portion of the nutrient load in the Red River of the North basin results from surface runoff from agricultural activities and irrigation returns. Present and proposed legislation and regulations do not allow the EPA to control these non-point waste sources.

3.4 Mitigation or prevention of adverse effects on water quality from diversion and use of Garrison project waters.

Purpose of the Plan

To mitigate or prevent adverse effects on Red River water quality from diversion and use of Garrison project waters.

Situation

The Bureau of Reclamation's Garrison Diversion project, now under construction, will transport additional mineral salts into the Red River Basin. Additionally, the use of this water, especially for irrigation, will increase the salinity levels through concentration of the imported salt and leaching of dissolved solids from irrigated lands. Increased irrigation may also effect nutrient associated water quality problems. Action is required to evaluate the projected impact of the project and to determine measures which can be taken for the prevention, abatement, and control of the identified environmental problems.

Approach and Milestones

By May 1, 1972, complete an evaluation of the Garrison Diversion activities and forecast water quality effects from the project.

By June 1, 1972, meet with Bureau of Reclamation to discuss results of study, determine appropriate control measures, and request revised Environmental Impact Statement.

By July 1, 1972, review the Corps of Engineers' proposals for flow augmentation to alleviate salinity effects from the Garrison project against the new EPA flow regulation policy. Advise Corps of Engineers of impact on their project.

By August 1, 1972, meet with State water pollution and water resource agencies to discuss results of efforts to date.

By September 1, 1972 - Develop program outlining measures to be taken by the involved agencies.

Interrelationships

Coordination of water resource planning with water quality management planning is essential. Early identification of environmental management needs is prerequisite to the incorporation of environmental considerations into on-going water resources planning activities.

Unresolved Policy Issues and Problems

1. Project is underway and planning is in advanced stages; therefore, opportunities for impact may be limited.

2. Due to nature of problem and EPA's limited authority, implementation of recommendations may be hampered.

Project Manager: Pat Godsil, Planning Branch, Air and Water Programs Division

3.5 Supplement 18CFR601 planning activities.

Purpose of the Plan

To supplement 18CFR601 planning efforts to develop a comprehensive basin-wide water quality management plan for the Red River Basin.

Situation

The States of North Dakota and South Dakota are limited in their ability to complete the plan by the July 1, 1973, deadline due to inadequate staffing levels. South Dakota has requested planning assistance from EPA.

Approach

Planning staff will be assigned to work with the respective states to supplement their planning resources to assure that the July 1973 date will be met.

Milestones

By April 1, 1972, contact States.

By May 1, 1972, assign Regional Representative to assist States.

By June 1, 1972, identify supplementary resources required.

By July 1, 1972, assign necessary resources to State assistance program.

By July 1, 1973, complete 18CFR601 Basin Plan.

Interrelationships

Close coordination will be required with all regional programs in order to identify potential problems and environmental controls.

Project Manager: Pat Godsil, Planning Branch, Air and Water Programs.

APPENDIX A

MILESTONE CHARTS

	1972 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	73	74	75
Section 3.1 Improve bacteriological and dissolved oxygen quality of the Red River of the North															
Sign contract for wastewater treatment facility at Fargo, North Dakota, as required by 180-day notice hearing in July 1970. S. Berman				X											
Begin construction of the Fargo facilities, S. Berman				X											
The City of Fargo will have the new secondary wastewater treatment facility in operation.										X					
The City of Moorhead, Minnesota, and the American Crystal Sugar Company refinery, Moorhead, will have new wastewater treatment facilities in operation.										X					
A construction grant will be offered and accepted by Abercrombie, North Dakota.					X										
The secondary wastewater treatment facility for Abercrombie, North Dakota, will be in operation.											X				
Section 3.2 Process Ten Permits															
Inspections in the Red River Basin for the purpose of identifying uninformed or noncomplying industries completed.								X							
Completed applications obtained for all significant industries.									X						
Requests for State certification completed for all significant industries.										X					
Interim effluent monitoring plan developed for the major industries; plan finalized.												X	X		
Technical reviews of applications from significant industries in Red River Basin completed; special permit conditions set to meet water quality standards, secondary levels of treatment, planning and institutional requirements, and water quality criteria set forth by the Bureau of Sport Fisheries and Wildlife and coordinated with EPA and the State departments of health; recommendations to Corps of Engineers completed.													X		

	1972 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	73	74	75
Section 3.3 Analyze the nutrient problem and develop a control program															
Water samples will be collected and analyzed for nutrients.													X		
Results and conclusions of the nutrient survey will be completed.														X	
The control plan for the Red River of the North will be developed.														X	
The enforcement conference will be reconvened and the control program presented and adopted.														X	
Section 3.4 Mitigation or prevention of adverse effects on water quality from diversion and use of Garrison Projects.															
Complete an evaluation of the Garrison Diversion activities and forecast water quality effects from the project.					X										
Meet with Bureau of Reclamation to discuss results of study, determine appropriate control measures, and request revised Environmental Impact Statement.						X									
Review the Corps of Engineers' proposals for flow augmentation to alleviate salinity effects from the Garrison project against the new EPA flow regulation policy. Advise Corps of Engineers of impact on their project.							X								
Meet with State Water Pollution and Water Resource Agencies to discuss results of efforts to date.								X							
Develop program outlining measures to be taken by the involved agencies.									X						
✓Section 3.5 Supplement 18CFR601 planning activities.															
✓Contact States. P Godsil				X											
Assign Regional Representative to assist States.					X										
Identify supplementary resources required.						X									
Assign necessary resources to State assistance program.							X								
Complete Basin Plan (18CFR601)													X		